**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_**

**SOUND PROJECT**

In this project, you will research and present to the class a particular topic about sound. You may create a presentation, or you may write a report. In addition to your information, you must also include a demonstration (either in real-life, or share a video from YouTube) that shows something meaningful about your topic. You will work with partners on this project and you will both need computers in class to do this work.

As you research, you will need to keep in mind the research skills we have talked about in class. Make sure that you are using credible websites. Make sure that you are not copying information- be sure to put it into your own words.

You will be graded on the completeness and the accuracy of your information, its presentation, word choice, and conventions (spelling and grammar). You will also be graded on your oral presentation to the class.

**Part 1. Research various aspects of sound and choose topic**

* Research various aspects of sound
* Decide with partner which topic you would like to research further and present on

**Part 2. Draft your overview**

* Answer the following questions: What is sound? What kind of waves are sound waves?
* Describe and define: wavelength, frequency, pitch and amplitude

**Part 3: Research and draft description of your topic**

* Research your topic and decide which information will make your explanation complete.
* Draft your explanation. (You may include history, definitions, examples and images. What you include will depend on your topic).

**Part 4: Plan and practice demonstration and/or find video**

* You may show us a demonstration in real-life, and you may also show us a short YouTube video if it demonstrates something meaningful about your topic.

**Part 5: Draft your references page**

* A list of URLs of the websites you used in your research (including images and video)
* (At least two sources must be EBSCO sources)

**Part 6: Present your final presentation to the class**

* Prepare a ten minute presentation to present to the class
* Submit your written portion to me for grading

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| --- | --- | --- |
| **Due Date** | **Pacing: Deadlines for Completion** |  |
| Friday 5/19 | Research and choose topics (due by the end of class) |  |
| Monday 5/22 | Draft your overview (draft due by the end of class) |  |
| Tuesday 5/23 | Research and draft description of topic |  |
| Thursday 5/25 | Research and draft description of topic (draft due by the end of class) |  |
| Friday 5/26 | Find and/or practice presentations and draft references page |  |
| Monday 5/29 | Presentations |  |
| Tuesday 5/30 | Presentations |  |

**POSSIBLE TOPICS**

1**. Echolocation:** What is it? What animals use echolocation? Why do they use it? How does it work?

2. **The sound barrier:** What is the speed of sound? What is the sound barrier and what is the history behind people’s attempt to break the sound barrier? Include information on shock waves and sonic booms.

3. **Sonar**: Who developed it? When? How do people use sonar? What discoveries has sonar led to?

4. **Doppler effect**: What is it? How does it work? How can people use it in different situations?

6. **Frequency and hearing**. What is frequency? What frequencies can humans hear? Give examples. What frequencies can some animals hear? Give examples.

7. **Measuring Loudness.** How is loudness measured? What are some examples? What levels of loudness can cause hearing loss? How does that happen?

8. **Seeing sounds:** How does an oscilloscope “show” you a sound wave? Give some examples. You should talk specifically about amplitude, wavelength, and frequency.

9. **Resonance:** What is natural resonance? How can an opera singer break a glass?

10. **Hearing:** What are the parts of the ear? How does your body hear and process sounds?

11. **Resonance:** What is the story of the Tacoma Narrows Bridge? What does it have to do with

resonance?

12. **Diffraction:** What is diffraction? Why can you hear sound around a corner, but you can’t see around a corner? What does this have to do with diffraction?

13. **Thunder:** What is thunder? Why does thunder sound like a loud crack up close, but like a low rumble when you are far away? What does this have to do with diffraction? And what is diffraction?

14. **Standing waves:** What are standing waves? How do standing waves combine to create a musical note? What are harmonics (harmonic frequencies)?

15. **Speed of light:** What is the speed of light? How does it compare to the speed of sound? What are some examples that show the difference in their speeds? Explain them.

16. **Amplitude**. How does an amplifier work? Give an example of an electric guitar and/or a microphone.